sense paths **520** are again interrogated to obtain an image representing, this time, the strength or intensity of the force applied to cosmetic layer **505**. The operation of computer input devices (e.g., touch pads) for touch detection based on the principle of mutual capacitance is described in US patent application entitled "Multipoint Touchscreen" by Steve Hotelling, Joshua A. Strickon and Brian Q. Huppi, Ser. No. 10/840,862 and which is hereby incorporated in its entirety.

[**0026**] Referring to FIG. **6**, location and force touch pad **600** in accordance with another embodiment of the invention is shown in cross section. In this embodiment, cosmetic layer **605** comprises a polyester or polycarbonate film. Layer **610** comprises an acrylic-based pressure sensitive or ultraviolet light cured adhesive. Layer **615** functions as a two-sided circuit board that has a first plurality of conductive drive traces **620** oriented in a first direction on a "top" surface (i.e., toward cosmetic layer **605**) and a plurality of conductive sense traces **625** oriented in a second direction on a "bottom" surface. In one embodiment, circuit substrate layer **615** comprises a low temperature plastic or thermoplastic resin such as polyethylene terephthalate ("PET". In this embodiment, drive traces **620** and sense traces **625** may comprise printed silver ink. In another embodiment, circuit substrate layer **615** comprises a flexible circuit board, or fiberglass or glass and drive and sense traces (**620** and **625**) comprise Indium tin oxide ("ITO") or copper. Layer **630**, in one embodiment, comprises a layered combination consisting of adhesive-PET-adhesive, where the adhesive components are as described above with respect to layer **610**. Layers **635**, **640** and **645** comprise PET of varying thicknesses. As shown, the "bottom" surface of layer **640** has affixed thereon a second plurality of conductive drive traces **650** oriented in substantially the same orientation as first conductive drive traces **620**. Raised and spatially offset support structures **655** and layer **660** also comprise a layered combination consisting of adhesive-PET-adhesive (similar to layer **630**, see above). Layers **605-660** are affixed to and supported by base or stiffener plate **665**. For example, in a portable or notebook computer system, base **665** could be formed from a rigid material such as a metal stamping that is part of the computer system's frame. Similarly, base **665** could be the internal framing within a personal digital assist and or mobile telephone. Table 1 identifies the thickness for each of layers **600-660** for one embodiment of touch pad **600**.

TABLE 1

Dimensions for Illustrative Touch Pad 600

Layer	Material	Thickness (mm)
605	Polyester, polycarbonate film, glass or ceramic	0.3
610	Pressure sensitive adhesive ("PSA") or ultraviolet ("UV") light cured adhesive	0.05
615	PET	0.075 ± 0.02
620	Silver ink, copper, Indium tin oxide	0.006
625	Silver ink, copper, Indium tin oxide	0.006
630	Layered PSA-PET-PET	0.03 ± 0.01
635	PET	0.075 ± 0.02
640	PET	0.1 ± 0.02
645	PET	0.125 ± 0.02
650	Silver ink, copper, Indium tin oxide	0.006

TABLE 1-continued

Dimensions for Illustrative Touch Pad 600

Layer	Material	Thickness (mm)
655	Layered: PSA	0.025 ± 0.01
	PET	0.1 ± 0.02
	PSA	0.025 ± 0.01

Active touch pad surface: 271 mm × 69 mm
No of drive traces (620 and 650): 13
Number of sense traces (625): 54
Pixel separation: 5 mm

[**0027**] In operation touch pad **600** measures the change (e.g., decrease) in capacitance due to cosmetic layer **605** being touched at one or more locations through the mutual capacitance between drive traces **620** and sense traces **625**. In a manner as described above, touch pad **600** also measures forces applied to cosmetic layer as sense traces **625** and drive traces **650** are brought into closer proximity through the measured change (e.g., increase) in mutual capacitance between them. In this embodiment, raised structures **655** are used on both sides of the second layer of drive traces (**650**) to provide additional movement detection capability.

[**0028**] During measurement operations, each of drive traces **620** are stimulated in turn and, simultaneously, the change in mutual capacitance between drive traces **620** and sense traces **625** is measured. Once each of drive traces **620** have been stimulated (and the corresponding change in capacitance measured via sense traces **625**), each of drive traces **650** are driven in turn and sense traces **625** are used to determine the change in mutual capacitance related to force (that is, the mutual capacitance change between traces **625** and **650** due to an applied force). In this manner, images of both the "touch" input and "force" input to cosmetic layer **605** can be obtained.

[**0029**] One of ordinary skill in the art will recognize that the above-described "scanning" sequence is not required. For example, drive traces **620** and **650** could be stimulated in overlapping fashion such that a first trace in drive traces **620** is stimulated, followed by a first trace in drive traces **650**, followed by a second trace in drive traces **620** and so on. Alternatively, groups of traces in drive traces **620** could be stimulated first, followed by a group of traces in drive traces **650**, and so on.

[**0030**] In one embodiment drive traces **620** (associated with touch location measurement operations) use a different geometry from drive traces **650** (associated with force measurement operations) and sense traces **625** (used during both location and force measurement operations). Referring to FIG. **7**, it can be seen that drive traces **620** utilize conductive traces that employ internal floating plate structures **700** and, in addition, are physically larger than either the conductive traces used in sense **625** and drive traces **650** (both of which, in the illustrated embodiment, have the same physical size/structure). It has been found that this configuration provides increased sensitivity for determining where one or more objects (e.g., a finger of stylus) touch, or come into close proximity to, cosmetic surface **605**.

[**0031**] Referring to FIG. **8**A, in another embodiment of a combined touch and force sensitive touch pad in accordance